

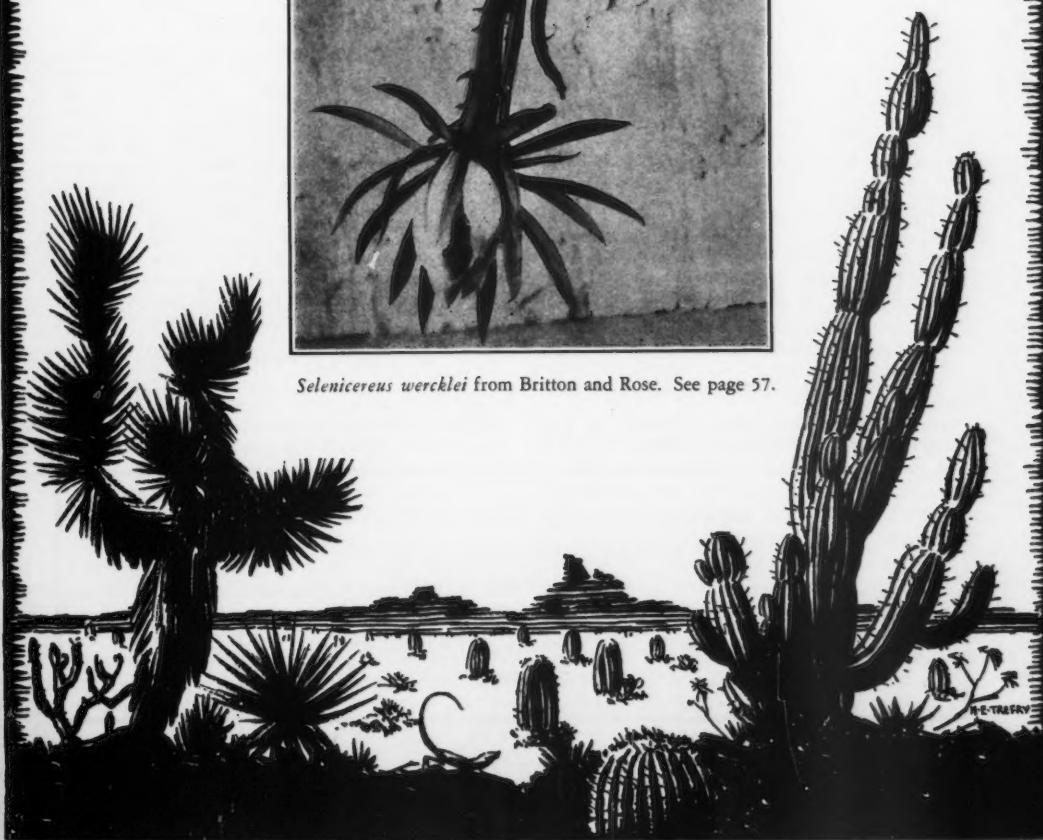
CACTUS AND SUCCULENT JOURNAL

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Of America

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Selenicereus wercklei from Britton and Rose. See page 57.



CACTUS AND SUCCULENT JOURNAL

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ANNUAL MEETING

The annual meeting of the SOCIETY was held on Sunday, September 20, 1936, at the home of William Taylor Marshall, 327 North Avenue 61, Los Angeles. President Howard E. Gates, presided.

The nominating committee, composed of Edgar M. Baxter (chairman), R. W. Kelly, Dr. R. T. Craig, Harry Grimes, and J. Sherman Denny, reported the following slate for officers of the SOCIETY for 1937. Chairman Baxter in submitting the report explained that the committee had attempted to return a slate which would be representative of the numerous local groups and affiliated societies. The report was accepted unanimously by the members and further nominations for each office were called for by the President. No further nominations being made, however, it was moved and seconded that the nominations be closed which motion carried unanimously. It was moved and seconded that the Recording Secretary be instructed to cast a unanimous vote to elect the nominees, which motion was also carried unanimously. However, as provided in Article VII, Sect. 2, of the SOCIETY, a write-in space for further nominees must be provided on the ballot, because of which provision a ballot will be found elsewhere in this issue of the Journal. Members are requested to return the ballots prior to midnight, December 15, for counting. After the meeting Mr. William Hettrich, Curator of The Huntington Botanical Gardens, and Vice-President of the SOCIETY, gave an interesting illustrated talk on his recent trip to England and the Continent where over a period of several months he visited many outstanding private and botanical gardens.

The nominees follow: President Howard E. Gates, Anaheim, Calif.; Vice-President Clarence L. Clum, Los

Angeles; Recording Secretary J. Sherman Denny, Huntington Beach, Calif.; Treasurer Dr. R. W. Poindexter, Long Beach, Calif. For members of the Board of Directors: George W. Becker, Long Beach; Ernest Braunt, Los Angeles; Scott E. Haselton, Los Angeles; G. G. Hoag, La Canada, Calif.; Robert W. Kelly, El Monte, Calif.; Dr. F. L. Kennedy, Long Beach, Calif.; William T. Marshall, Los Angeles; Ervin Strong, La Habra, Calif.; William J. Surganty, Los Angeles; Gilbert H. Tegelberg, Inglewood, Calif.; and W. P. Weston, Tracy, Calif.

CLARENCE L. CLUM, Recording Secretary.

BOOK REVIEW

LES CACTÉES ET LES PLANTES GRASSES by Dr. P. Fourrier of the University of Paris. Published by Paul Lechevalier, Paris. 414 pages, 134 illustrations, distribution maps and 64 plates in full color. Price 50 fr.

This valued book, in French, contains a mass of information and can well be used as a text-book for the French nation. Interesting sketches of the varied types of areoles on the different genera of cacti is only one of the many chapters. Keys, distribution charts, culture and propagation are among the interesting subjects.

The section on the other succulents follows which is entitled "Les Plantes Grasses."

Not with standing the inferior printing and color work the book should be in every cactus library. For further details regarding this book write to the Editor of the Journal.

NEW LISTS RECEIVED

Albert Schenkel, Hans Langestr 11, Blankenese-Hamburg. Four page seed list of Aizoaceae and Mesembrianthemaeae. Also one page of pencil drawings of succulents. List is free if you mention the JOURNAL.

NEXT MEETING OF THE CACTUS SOCIETY

Thursday, October 22nd, 8:00 P. M.

Pasadena Public Library
285 E. Walnut St., Pasadena

The first indoor meeting of the fall season
A good speaker on an interesting subject



Slender form of *Opuntia leptocaulis* growing
in the wild in Arizona

Opuntia Leptocaulis

By JACK WHITEHEAD

Boyce Thompson Southwestern Arboretum,
Superior, Arizona.

Opuntia leptocaulis resembles the cactus of popular conception not at all; rather, it is more than likely to simulate the habit of a well-grown garden shrub. The trunk is short and from it arise the slender and terete and indistinctly tuberculated joints which are usually scarcely more than a quarter of an inch thick. These joints are of two kinds: the one, of varying lengths, forming the main body of the plant; the other, short ultimate joints, clustered in right angle formation on the main branches. The leaves are small, more or less temporary affairs. The spiny armament at once shows the relationship between this shrub-like plant and the other species of desert cacti. These spines are usually solitary at each areole, are porrect, from one to two inches long, and encased in papery, straw-colored sheaths. It is, in fact, the spines of this cactus as much as those of any other that inflict such painful injury as to give rise to the popular belief that cactus spines are poisonous, small fragments of the sheath being left in the wound so as to cause festering. Somehow or another the authorities on cacti do not do the pretty small whitish green flowers of *Opuntia leptocaulis* justice; nor do

they seem to quite understand them. Engelmán, in writing of the flowers, makes this rather odd statement: "It has been said that its flowers, contrary to the habit of the genus (which has diurnal flowers) are nocturnal, which, however, is now positively denied." This statement is not quite right, as some *Opuntias* are undoubtedly inclined to be nocturnal, as witness our common Cholla, *Opuntia fulgida*, in which the flowers usually open late in the afternoon and stay open all night; and whosoever positively denied the nocturnal habit of the flowers of *Opuntia leptocaulis* might have been less positive and more observant. These flowers behave very much in the same fashion as those of the Cholla and, while botanically described as small and inconspicuous, they are lovely when seen arrayed over the shrubby plants as myriads of tiny glistening stars early in the evening, or even more fascinatingly beautiful, on a clear July or August moonlight night on the desert. But pretty as are these dainty blossoms, it is the smooth, fleshy, few-seeded fruits that really endear this cactus to all desert lovers. Towards the end of the slender spiny branches are thickly clustered the deep scarlet

fruits or "berries" that, by persisting through the winter, lend the cheerfulness and brightness that have led Dr. Thorner, of the University of Arizona, to most appropriately name this plant the Desert Christmas Cactus. Here is charmingly afforded the red and green "holly" effect of so much decorative value. Just try a few fruiting sprigs of this cactus in some suitable piece of southwestern Indian pottery as a Christmas decoration. Desert Christmas Cactus is, however, not the only common name of this decidedly ornamental cactus. The Indians of Mexico often call it to "Tasajillo" and the Mexicans generally refer to it as "Garrambullo," a term, however, rather often used without much discrimination for almost any shrub bearing red berries.

The good books on Cacti often state, rather ambiguously, I'm afraid, that the fruits of this cactus are proliferous occasionally. They are indeed. Proliferous in botanical parlance means, "bearing progeny as offsets," and this *Opuntia leptocaulis* most assuredly does. Witness Englemann, "What is most remarkable, these fruits are often proliferous, and bear from one to four or five new branches from the upper branches of spines." But Britton and Rose definitely use the term proliferous for the chain-like bearing of one fruit upon another. This also occasionally, very occasionally however, happens in the fruits of our *Opuntia leptocaulis*, but should not be termed proliferous. Perhaps prolific instead of proliferous might be more correctly used in describing a chain-like sequence of fruits. In *Opuntia fulgida* we have a perfect example of a plant producing both proliferous and prolific fruits in great profusion.

The shrubby character of *Opuntia leptocaulis* has ever been reflected in the specific names bestowed upon it by botanists. Beginning in 1828 with DeCandolle, who originally described it *Opuntia leptocaulis*, this species has run through a list of synonymy always, with one exception, tagged with a specific name descriptive of some habitual character rather than, as is too often the case, one monumentally dedicated to some unknown botanist. DeCandolle's name, *leptocaulis*, rather generally means slender-stemmed. Salm-Dyck, in 1834, in describing what he considered a new cactus, gave it the appropriate name of *Opuntia ramulifera*, as being significant of its intricate system of branching. Link completed the European treatment with his name *Opuntia virgata*, a name also referring to the slender wand-like branches of this species. In this way the European botanists treated the most widely distributed of all cacti in the United States. Let's take a peep at what the American botanists did for the same plant. Englemann, in 1845, quite

erroneously considered the newly discovered plant to be a variety of *Opuntia fragilis*, a very different plant, and, noting the shrubbiness of habit, named the variety *frutescens*, *Opuntia fragilis frutescens*. In 1850, however, he no doubt realized his mistake and raised the plant to the dignity of a species as *Opuntia frutescens*. Finally Englemann recognized DeCandolle's original description and *Opuntia frutescens* became *Opuntia leptocaulis*.

Englemann, in his Synopsis "Cactaceae of the United States" placed our cactus in a group of obscurely tuberculated, single-spined, yellow and red flowered *Opuntias* under *Monacanthae*, "monacanthae" literally meaning one-spined. This section included: *Opuntia wrightii*, *O. arbuscula*, *O. vaginata*, *O. frutescens*, *O. frutescens longispina*, *O. frutescens brevispina* and *O. tessellata*. *Opuntia wrightii* of Englemann has become the *Opuntia kleimiae* of the DeCandolle, in spite of the fact that the latter plant was originally described as being without tubercles. Britton and Rose, commenting upon the apparent discrepancy, suggest that *Opuntia arbuscula* might better fit DeCandolle's description though at the same time expressing doubt as to the possibility of *Opuntia arbuscula* being known to European botanists at the time of DeCandolle. Doubt, of course, there may be, but perhaps not as much doubt as one might think when it is considered that Englemann is the authority for the statement that over eight hundred species of cacti were cultivated in Europe at that early date and most of them raised from seeds collected in Mexico. In 1848, from material collected by Wislizenus, Englemann thought he had an entirely different *Opuntia* and, because of the more or less loosely fastened spine sheaths, named it *Opuntia vaginata*. 1856 saw Englemann apparently wavering in regard to his species *vaginata*; so he compromised by naming, on account of the length of spines, two varieties of his *Opuntia frutescens*, *longispina* and *brevispina*, and included his species *vaginata* under the variety *longispina*. Serano Watson brought all this synonymy up-to-date in 1878 by reducing all of the foregoing to DeCandolle's *Opuntia leptocaulis*. However, Serano Watson was not satisfied, as, after mentioning Englemann's variety *brevispina*, he painstakingly reduced that author's other variety, *longispina*, to *Opuntia leptocaulis vaginata*, quite oblivious of the fact that Englemann himself had already practically invalidated the name *vaginata* by associating it with his *Opuntia frutescens longispina*. This variety, *longispina*, which, by the way, is in all likelihood our most common form of *Opuntia leptocaulis*, gave Coulter an opportunity of

further confusing the issue. In 1896, Coulter sought to have his *Opuntia leptocaulis stipata* recognized in place of Engelm's *Opuntia frutescens longispina*. In reality all he accomplished was to thoroughly confuse everyone. "Stapata" means "crowded or pressed together" and no doubt Coulter had in mind the numerous short joints given off so characteristically in right-angle fashion along the main branches of this species. In spite of his good intentions, however, his short description begins, "Young joints stipitate;—." "Stipitate," of course, meaning "stalked" and therefore ridiculous in describing the joints of any of our *Opuntias*. Little wonder that C. R. Orcutt, in his copy of this "Contribution" pencilled on the margin against *Opuntia leptocaulis stipata*—"Not leptocaulis." *Opuntia tessellata* was originally described by Engelm in 1852 as *Opuntia ramosissima*, but in 1856 the author considered "the original name unsuitable in a section of branching species" and renamed it *Opuntia tessellata*. Britton and Rose easily disposed of this difficulty in "The Cactaceae" by restoring the original name of the species and placing it in a separate series of *Opuntias*, Series *Ramosissimae*.

In Britton and Rose's monumental work, "The Cactaceae," Engelm's *Monacanthae* is displaced by Series *Leptocaulis*, and made to include the following: *Opuntia mortolensis*, *O. leptocaulis*, *O. tesajo*, *O. caribaea*, *O. arbuscula*, and *O. kleiniae*. Thus we see it remained for Britton and Rose to break the system of affixing a specific name to *Opuntia leptocaulis* and its varieties by which some outstanding characteristic of the plant is described. No doubt it was very courteous for the authors of this great work on Cactaceae to name a plant, received from La Mortola, Italy, and grown in the greenhouses of the New York Botanic Gardens, *Opuntia mortolensis*, in spite of the fact that that great authority on cacti, Mr. Alwin Berger, at one time in charge of Sir Thomas Hanbury's La Mortola Gardens, had already referred it to *Opuntia leptocaulis longispina*. In view of this plant's history it is reasonable to infer that it is likely to find a place far down the list of *leptocaulis* synonymy.

Engelm, commenting on the confusion surrounding our southwestern cacti, once remarked, "Unscrupulous gardeners and traders do their best to increase the confusion." Indeed! But surely their very best must needs fall by the wayside in comparison with the confusion botanists have succeeded in working around one of the most distinct of all southwestern cacti, *Opuntia leptocaulis*. Of course, all the blame should not be laid upon the shoulders of the

botanists, as collectors were none too keen about hauling in anything like complete material of plants so spinily repulsive and enormously bulky as our heavily armed cactuses. Again some of the collectors' notes were none too accurate as, for instance, the plant upon which Engelm based his description of *Opuntia fragilis frutescens*. It was collected by Lindheimer "near the Muskit-thickets on the Colorado," muskit being, no doubt, intended for the well-known mesquite.

While *Opuntia leptocaulis* maintains a distinctiveness all its own, it does vary considerably among the individuals of the species. Spines may vary greatly in length and in some few cases be absent altogether. As to the habit of growth, here on the Arizona desert at least there appear to be two rather well defined forms. The one is rather dwarfed of stature, very compact of growth and crowded with clustered short ultimate joints, and distinctly dark green in the color of its branches. This form is usually to be found growing in dense colonies, the individuals very close together. The fruits are dark scarlet. The other form is usually taller and of much more open formation of growth, the ultimate joints being fewer and not so densely crowded, and the whole plant a lighter green with the fruits more of an orange-red. This plant mostly is found in a solitary state in the field. It is not, however, merely a matter of better environmental conditions resulting in a more vigorous specimen because often this form may be seen among clumps of the dwarfer plants and even then it is more than distinct.

Illustrations of cactus plants are frequently disappointing. Not so, however, plate twenty in Engelm's "Collected Works," showing two varieties of *Opuntia frutescens* and the species *vaginata*. The *Opuntia frutescens* forms are clear enough, but *Opuntia vaginata* looks to be somewhat puzzling. But, after carefully observing *Opuntia leptocaulis longispina* both in the field and in the herbarium, it is rather easy to convince oneself that *Opuntia vaginata*, in spite of its tuberculated joints and fruits, is but the artist's conception of a restored herbarium specimen of the *longispina* variety aided and abetted by a botanist's description. The fruits of *Opuntia vaginata* were described as red and yellow in two different descriptions. The red fruits need no explaining and the yellow ones may somewhat readily be explained away. On Christmas Day last, the writer of this article was guided by Miss Adelia Murphey of Superior, Arizona, to a spot on the desert where there grew a tall and symmetrical plant of *Opuntia leptocaulis* literally covered with large, fleshy, bright yellow berries.

This being so, is there not some possibility of Engelmann having been brought by his collectors a plant really bearing yellow fruits? That such plants do exist, the writer is ready to prove, and Schulz and Runyon in their splendid book, "Texas Cacti," report this yellow-fruited form to be rather common of occurrence south of San

Antonio, near Somerset, Texas.

Opuntia leptocaulis is perhaps the most widely distributed of all the cacti of the southwestern deserts. Usually in the Lower Sonoran Zone, it spreads throughout Texas, New Mexico, and Arizona, part of Southern California, and the northern half of Mexico.



View of the new Succulent House at the Missouri Botanical Garden, housing South African succulents

The Missouri Botanical Garden

By LADISMITH CUTAK, in charge of Succulents

The Missouri Botanical Garden, one of the really famous institutions devoted to all phases of plant life, has served the public well for over seventy-five years. This world-renown institution is unique in that it is entirely self-supported from funds left by its founder. Credit is due to those men behind the scenes who have served it so well and to the present director who so shrewdly has managed its affairs, especially during such trying days as in the past. The Garden,

which is open to the public daily except Christmas and New Year's Day, is chiefly known for the following features: *Indoor Floral Displays* from November to May which attract thousands of visitors from far and near; *Tropical Water Lilies*, many of the finest having originated and developed at the Garden; *Collection of Orchids*, possibly the largest in the world; a *Herbarium* comprising of over 1,000,000 plant specimens; a *Library*, one of the largest and finest of botani-

cal libraries in this country; and last but not least, the *Succulent Collection*, which to many minds, is the largest and finest under glass in America today. This last statement is not the product of the writer's imagination, but is the general opinion of many visitors who have seen other notable collections of succulents. Men of science, especially botanists, who attended the convention of the American Association for the Advancement of Science in St. Louis, in the early part of this year, had only words of praise for the Garden's display of desert plants. Some Ph.D.'s loudly proclaimed the collection as the largest that they had seen and many were seen jotting down names and notes to take back home. Just recently, a woman member of one of the garden clubs of old Virginia, who had just returned from a tour of Mexico, made the statement that she saw more cactus in Shaw's Garden (a popular name for the Mo. Bot. Gard.) than she did in all of Mexico.

In its early days the Missouri Botanical Garden possessed the finest and most important collection of succulent plants in this country, but for some reason it later was neglected and then that memorable hailstorm of May 28, 1927, reduced the collection to a mere skeleton of its former self. Hardly a single specimen had entirely escaped damage and many of the choice specimens were totally lost to the collection. In 1930 the writer assumed charge of the main conservatories, where the succulent collection was housed. An inventory of all plants growing in that range was undertaken, the result of the survey disclosing but 154 named species of succulents and about 100 unnamed plants. Two years later the succulent collection was increased to 462 named species. Since then, valuable donations of desert plants and seeds were received from various botanical institutions and private collectors, so that at the present writing the collection now exceeds well over one thousand specimens. Because of the great interest in desert plants and owing to the very considerable additions in recent years, it was decided to segregate the South African succulents from the American and to create a new home for them. The original Coffee and Banana House was wholly remodeled and the eastern half now is devoted to South African plants of Liliaceous, Crassulaceous, and Aizoaceous alliance. It was opened to the public in the early part of 1935, and at present 250 species are thriving there. The collection is constantly being added to.

Conspicuous among the plants in this House are the Aloes, of which there are about 100 different kinds. This group of plants is very decorative and have recently become quite popular with

succulent fanciers because they are very easily grown and like the *Aspidistra*, will stand a lot of abuse. The Aloes are thriving exceedingly well since planted out and all have flowered majestically this spring, lending enchantment to their new home. Their close relatives, *Gasterias* by name, are also well represented and a word in their favor will suffice here when calling them the freest bloomers of all the succulents. The Orpine family includes such well-known genera as *Bryophyllum*, *Kalanchoe*, *Crassula*, *Cotyledon*, *Rocbea* and *Aeonium*. These too, had their share of flowers, with perhaps *Kalanchoe blossfeldiana* standing out more brilliant than all the rest, simply because many of these plant were massed together. The Fig-marigolds or *Mesembryanthemums* also occupy a prominent position in the new South African House. Only the bushy and tufted species are included as experience has taught to keep the stemless, mimicry *Lithops*, *Pleiospilos*, etc., away from the reach of the too-enthusiastic fancier of these plants.

The original succulent house, now popularly known as the Cactus House, contains a very fine collection of American desert plants and it likewise is being constantly added to. Here are to be found many bizarre and grotesque denizens of waste places, such as the tall, columnar *Cerei* of tropical America, the Mexican nipple cacti and the spiny *Echinocerei*. Although the cacti are eminently featured, other desert plants, particularly the *Yuccas* and *Agaves*, also occupy a prominent position in the collection. The only eastern hemisphere representatives included in this section are the ever-interesting cactus-like *Euphorbias* and *Stapeliads*, of which there is a good number. A wide gravel walk meanders through the house and from it, on both sides, rise the gradually sloping beds with their conglomerate plant life. Limestone rock, mostly of the honey-comb variety, such as is found in Missouri, is used throughout and serves the purpose admirably. Years ago the cacti and other succulents of large proportions were grown in tubs or boxes and during the summer months were placed outdoors, where they thrived marvelously under the Midwestern sun, but as the moving indoors and out always presented a serious and an enormous task, a permanent home was established for these plants and the former practice was discontinued.

At present all the succulents are planted directly in the soil in the greenhouses, where under constant care, they are thriving as healthily as if planted outdoors. With this constant care and vigilance, the plants have rewarded the writer with an abundance of bloom each year. The stately *Cereus hankeanus* (Britton and Rose in-

clude it under *Cereus validus*) of almost forty summers, has been the most prolific bloomer among the cacti, and as high as 150 blossoms were counted this year on the plant. At this writing (July, 1936) most of the flowers are now turning into fruits and in a few weeks the upper branches of this *Cereus* will be conspicuously dotted with the ripened purplish fruits that split open, exposing the highly colored pulp which can be eaten. Next in importance comes the slender, twining Brazilian night-bloomer, known botanically as *Monvillea cavendishii*. The first flowers open in April and continue almost regularly until September. The *Selenicerei* have also their share of blooms. Several bushy, grafted specimens of *Zygocactus truncatus* hold sway during the Christmas holidays, followed by the *Rhipsalis* and then the *Neomammillarias*, *Neobesseyas* and *Echinocerei*. Among the Liliaceous desert plants, the Guatemalan *Yucca elephantipes* blooms almost every year. *Nolina recurvata* has bloomed twice in five years and the Band-saw Sotol (*Dasylirion serratifolium*) last bloomed in May of 1935. This latter plant threw out a flower-spike that attained a height of eleven feet and held the "spotlight" in the desert house at that time. Among the century plants, the following have bloomed in the past few years. *Agave attenuata*, *A. pruinosa*, *A. verschaffeltii*, *A. treleasei*, *A. chrysantha* and *A. mitis*. An interesting feature of *A. verschaffeltii* is well worth recording here. In 1933 a flower spike made its appearance on this particular plant and when it attained a height of four feet its growing tip was accidentally broken off by a visitor. Only about thirty flowers developed from the topmost bracts, but the plant did not die. The following year, additional spikelets developed from the remaining bracts. In 1935 a spikelet of five flowers developed from the submerged base of the plant and likewise in 1936, after which the plant eventually died. Had the flower-spike grown to its normal size, all of this, perhaps, would not have happened.

A few years ago the director of this institution remarked to a group of school teachers that the modern botanical garden failed to serve the community to the fullest degree if the school child as well as the advanced student could not learn from it and be interested in it. For this reason and because schools, not only from the vicinity, but from other states of the Union make yearly pilgrimages to this famous garden, the Missouri Botanical Garden has always furnished some most important and unique opportunities for imparting knowledge. All plants in the Garden, whether in the greenhouses or outdoors, are well labelled. Realizing that a good majority of visi-

tors are not specifically botanically-minded, nevertheless this class of people will and do find great interest in all plants as all are labelled likewise with common names and furthermore a short descriptive tag of less than forty words accompanies each important plant. Since these timely and educational notices have been placed on succulent plants, the two desert houses have become very popular with the crowds. For example, a visitor stops before an *Agave* and reads: "To the Aztecs, this plant was meat, drink, clothing and writing materials. Various parts of the plant were used for pins and needles, as thatch for houses, thread for clothing, etc." Then admiring a barrel cactus he gathers this interesting bit of news: "Long ago the Indians of the southwest utilized these natural barrels for cooking pots. A cavity was scooped out, hot stones placed therein with food on top to cook." Succulents, or rather cacti in general, do not appeal to the average person as would other types of plants but nevertheless, these plants of grotesque shapes and forms come in for their share of popularity, especially in these modern times of ours. Each year more and more visitors travel through our southwestern deserts and can't help from becoming fascinated with their endemic flora. Subconsciously, whether a plant lover or not, the visitor will, as a rule, dig up a tiny pincushion or a hedgehog and even the lowly prickly pear, to bring back home a fitting souvenir of his trip out west. In many cases, a person thus will in the course of time become a dyed-in-the-wool cactus enthusiast, and many such persons have made their start this way. Not only amateurs, but also the advance student will gain much by a visit to the Missouri Botanical Garden and its succulent collection. Remember too, that each visit will prove more interesting than the preceding, because new additions always enhance the collection.

BLUHENDE KAKTEEN UND ANDERE SUKKULENTE PFLANZEN, Mappe 27

Four more full color illustrations have recently been published as part of the series by J. Newmann, Neudamm, Germany. These natural color photographs were taken by Prof. Dr. E. Werdermann of the University of Berlin. The subjects pictured are:

Caralluma nebrownii Dinter et Berger.

Stapelia ambigua Masson var. *fulva* Sweet.

Rebutia sarothroides Werdermann.

Echinocereus Brandegeei (Coulter) K. Schumann.

These portfolios are published quarterly for 16 Rm. per year.

The following 8 pages are from the reprint of Britton and Rose "The Cactaceae" Vol. II. Did you answer the questionnaire in the July JOURNAL?



Selenicereus pteranthus from the garden of R. E. Willis.
Photo by the late H. Wm. Menke.

SPECIALIZATION

From time to time comments have appeared in the CACTUS JOURNAL on the splendid results that follow specialization on one genus either of cacti or of other succulents. The data thus accumulated by concentrating on one genus is of inestimable value to collectors. The aim is to complete a genus and to record the differences in plants and flowers.

As I am partial to plants with large and attractive flowers, it is only natural that I should have attempted to get all of the *Selenicerei* that were obtainable, and the fact that most of the plants I acquired were misnamed only made me more anxious to secure the true species. I found that I would have to import plants from the type localities if I wanted true plants and this I have done with the result that I now have in my collection the following species:

Selenicereus acutangulis?

- S. boeckmannii* Otto. Santo Domingo.
- S. brevispinus* B. & R. Cuba
- S. coniflorus* Weing.
- S. donkelarii* Salm Dyck.
- S. flavicomatus*
- S. grandiflorus* Linn. Cuba & Puerto Rico
- S. hamatus* Schied.
- S. hondurensis* Schum. Costa Rica
- S. humilis* De. Can. Santo Domingo.
- S. inermis* Otto.
- S. kunthianus* Otto. Haiti
- S. macdonaldiae* Hook.
- S. murrilli* B. & R.
- S. nelsonii*
- S. pringlei*
- S. pseudospinulosus*
- S. pteranthus* Link & Otto.



A fourteen inch bud of *Selenicereus macdonaldiae* starting to open at 5 p. m. This flower remained open until 7 a. m. the following morning. Photo by Haselton.

- S. roseanus*
- S. rostratus* (possibly *hamatus*)
- S. spinulosus* De Cand.
- S. urbanianus* Gurk. & Weing. Haiti
- S. vagans* K. Brandeg.
- S. viridicarpus*?
- S. wercklei* Weber Costa Rico.
- 3—*S. species*.

Before I imported *S. grandiflorus* from Cuba, Porto Rico and Haiti, I had acquired six utterly

different plants under that name from local sources none of which proved to be true but most of them later identified as other species.

The *Selenicereus acutangulis* came to me from a Botanic Garden as an *Acanthocereus*, but it is definitely a *Selencereus* though not yet identified and the *S. viridicarpus* certainly appears to be *S. vagans* although I have had no blooms on it as yet.

WM. T. MARSHALL.

WEST INDIAN ECOLOGICAL EXPEDITION 1936

Itinerary: Haiti, Santo Domingo, Jamaica, Trinidad, Curacao, Aruba, Bonaire and many smaller Islands and perhaps the Bermudas.

Leave Los Angeles about October 20th, spend few days in New York checking on West Indian material. Leave New York on November 1st for Santo Domingo, stopping at the Bermudas if possible.

Collections to be made at each island visited and the material will be assembled at the port of Puerto Plata in the Dominican Republic as far as practical, otherwise shipments will be made direct from point of collection.

Known species of Cacti in the territory to be covered:

- | | |
|------------------------------|------------------------|
| <i>Cereus</i> .—5 | <i>Melocactus</i> .—5 |
| <i>Lemaireocereus</i> .—3 | <i>Opuntias</i> .—1 |
| <i>Selenicereus</i> .—4 or 6 | <i>Leptocereus</i> .—1 |
| <i>Neoabbottia</i> .—1 | <i>Hylocereus</i> .—6 |
| <i>Cephalocereus</i> .—11 | <i>Mamillaria</i> .—2 |
| <i>Harrisia</i> .—3 | <i>Consolida</i> .—14 |

Total species of Cacti 57, many Euphorbias and other succulents.

No doubt many new or undescribed species will be found.

For further information address:

WM. T. MARSHALL, 327 N. Ave. 61, Los Angeles

IMPORTANT WORK ON ALOES

Mr. G. W. Reynolds of South Africa is continuing his valued work with the Aloes which are native of Africa. There are many new species which he is publishing in the JOURNAL OF SOUTH AFRICA BOTANY. Following the new species, Mr. Reynolds plans a monograph on all of the native species. In April the new species *Aloe Vossii* and *Aloe agrophila* were published with a new variety, *Aloe Brownii* var. *tarkaensis*.

The work of Mr. Reynolds can be compared with that of Dr. Alain White and Mr. Boyd L. Sloane, who have in production, a monograph on the STAPELIEAE. With Mr. Eric Walther's work on Echeverias, which is only awaiting someone to undertake the publishing, three groups of Succulents will then be recorded for the benefit of science for hundreds of years to come.

This is the last opportunity to reply to the questionnaire which was enclosed in the July Journal. If you want to complete your set of reprints you must report so that arrangements can be made. By sending in the question form, you are not obliging yourself unless the terms are completely satisfactory. The definite terms for the completion of the reprints, and the Edition B, will be mailed to all those who have answered the questionnaire.

MAMMILLARIA

By DR. R. T. CRAIG

The genus *Mammillaria* as established by Haworth in 1812 is a very interesting group of plants that are very readily adapted to small gardens or to limited space in hot houses as they seldom attain great size with the exception of a very few of the very old cespitose types. They will adapt themselves to culture in pots and greatly repay the owner not in the great size of the bloom, as it is usually small, but for the many interesting colors of the flowers and their delicate markings.

Britton and Rose in Volume IV of their memorable work *THE CACTACEAE* recognized some 150 species, and listed many more under little known species. They did a marvelous piece of work in compiling the material in the form in which they presented it, as previously it was in a very confused uncoordinated state. Many of the descriptions in the literature previously were very incomplete and often erroneous as they brought out in their work and as has been further proved by subsequent investigation.

They were greatly handicapped in their field investigations on this genus because of the political conditions in Mexico at the time that they were gathering their material. As a result, they had to depend to quite an extent upon previously published data and illustrations and were very limited in obtaining original information.

Since 1923, when Volume IV was published, the investigation of this genus has been progress-

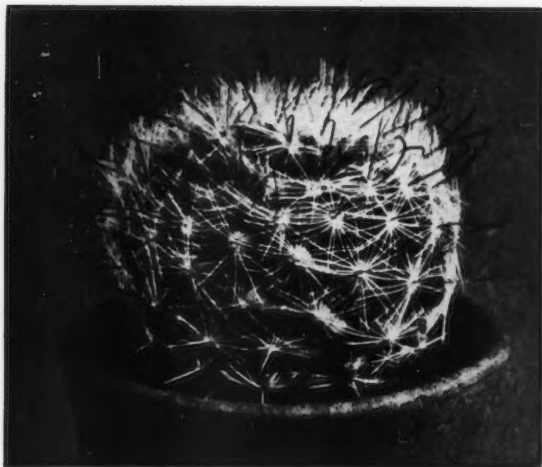
ing more rapidly. To show how incompletely this genus was investigated, there are now known to be over twice as many species as are listed by Britton and Rose. Since a great many of them have been described in the *Journal of the German Cactus Society* or in Mexico by the National University, they are not well known in English speaking countries with a few exceptions of some of the more striking species.

It was the scattered condition of the new material in different languages and the many very meager older descriptions which lack many important details that led the author to undertake a study of this genus to attempt to bring some order out of the chaotic condition by bringing together all relative information and to correlate both the new and older material under some practical key that will make it easier to identify specimens. He is gathering all possible authentic information and to aid in augmenting the published material he has assembled a collection of over 300 species from which he is working out some of the lacking details. This work will take some time for completion since most of the new descriptions have to be translated and it may take several seasons to get all the data on flowering, fruiting and seeding. In order to make all descriptions as near uniform as possible, they are arranged on the basis of the outline used for the one following which is a free translation of the original description of *Mammillaria weingartiana* by Fr. Bödeker.

Mammillaria weingartiana (Bödeker)From *MONATSSCHRIFT DER DEUTSCHEN KAKTEEN GESELLSCHAFT*

October 1932, page 219.

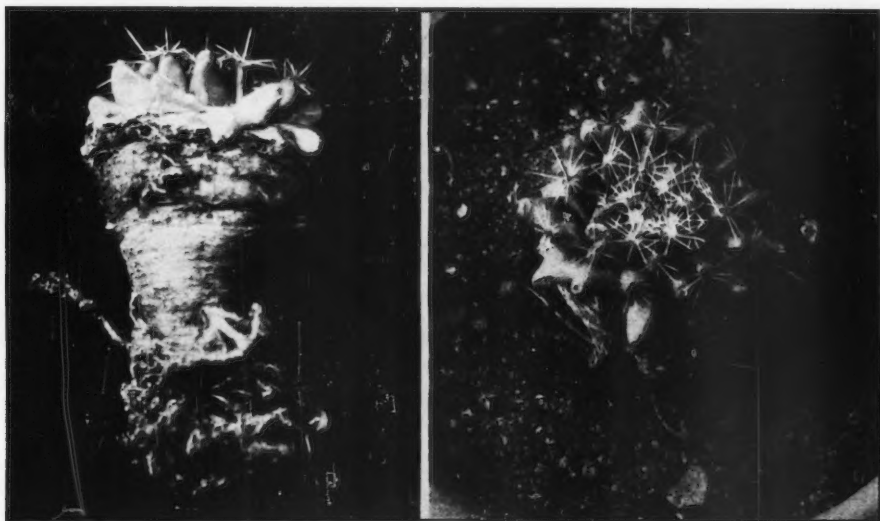
- Distribution* : State of Nuevo Leon, Mexico.
Type : near Ascension.
Habitat : simple and cespitose, multiply from base.
Shape : mostly globular, apex depressed.
Size : individual plants 4-5 cm. in diameter.
Tubercles : 13 and 21 contact lines, moderately loosely arranged.
Color : dark leaf-green, faint glossy.
Shape : slender conic, top sunken in.
Milky : no.
Size : 8 mm. long, 3 mm. thick.
Areoles
Shape : round, 2 mm. in diameter.
Woolly : somewhat white woolly, becoming naked and smaller.
Axils : naked.
Spines
Central : from young tubercles: 1 hooked; older: 1-2 hooked, 1-2 straight.
Number : 1-3.
Length : main center one: 12 mm. others somewhat shorter.
Type : stout acicular, smooth, base not knotty.



Mammillaria weingartiana
Bodeker

- Color : red to black brown.
 Direction : main center one straight from tubercle; others spreading.
 Radial :
 Number : 20-25.
 Length : uniformly 6-8 mm.
 Type : very slender, almost straight.
 Color : pure white.
 Direction : horizontally spreading.
 Flowers : blooms spasmodically in halo near crown.
 Size : nearly 10 mm. long, 12 mm. wide.
 Shape : funnel shaped.
 Outer perianth :
 Segments—color: pale green, with pale olive brown back stripe, pale rose point.
 Shape: lanceolate, slender point, ciliate margins, 1.5x10 mm.
 Inner perianth
 Segments—color: pale greenish yellow with pale brown rose mid stripe, darker point, abyss green.
 Shape: lanceolate, 1.5x12 mm. ciliate in middle part of its margin.
 Anthers : bright yellow.
 Filaments : green below to beautiful rose.
 Style : green.
 Stigma lobes : 3-5 white to delicate rose, level overtop.
 Bud : globular 2 mm. thick, dark leaf-green.
 Scale : linear oblong, 1-5 mm. tall, short slit point, pale yellowish green with brighter caticular margins.
 Fruit :
 Color : red.
 Size : small.
 Shape : clavate.
 Seed :
 Color : black, faint glossy.
 Size : 1 mm. wide, short egg-shaped, sloping smooth marginal point. small almost whitish navel.

The plant was sent to Bödeker by Fredrick Ritter in 1931 and he reports the plant as being very rare. It is placed provisionally near *Mammillaria carrettii*.



NEOMAMMILLARIA DAWSONII

EDITOR'S NOTE: The following is an example of the scientific work of Dr. R. T. Craig and shows the value of the recorded data by specializing in a single genus. Correspondence regarding new material is welcomed by the author.

The specimens of this species that were collected by Yale Dawson of Long Beach, California, and described by Dr. Houghton. All of the plants died before photographic record or detailed description of the flower could be obtained and thus it left much in doubt as to the true nature of the plant.

Mr. George Lindsay of Lakeside collected a small species at Punta Blanca which is near Punta Prieta the type locality of *Neomammillaria dawsonii* (Houghton). He sent me a plant that had two buds but only one of them came into bloom. This plant complies with the description of *N. dawsonii* and Yale Dawson examined a photograph of the plant and expressed the opinion that it was undoubtedly the supposedly lost species.

To augment the description of this species, I would like to offer additional descriptive information:

Color of tubercles: light green, not glossy.
Shape of tubercles: somewhat triangular conic, not sharply angled, keel shaped ventrally, slightly rounded dorsally.

Areoles: scant dirty white wool in youth, very soon naked.

Central spine color: dull, light brown base, darker tip.

Central spine direction: erect, converging over apex.

Radial spine color: horn, dark brown tip.

Flower: blooms in June.

Shape: funnellform.

Size: 12 mm. long.

Outer perianth segments: about 8.

Color: reddish brown tapering mid stripe, pale greenish yellow margins, tan base.

Shape: lanceolate, tip acute, margins serrated.

Inner perianth segments: about 16.

Color: pale greenish yellow, greener on ventral side, several brownish green mid lines, more prominent ventrally.

Shape: linear lanceolate, tip acute, margins some serrated, some entire.

Anthers: over 50 yellow, very small.

Fillaments: white to cream, about 5 mm. long.

Style: greenish yellow 10 mm. long.

Stigma lobes: 5 greenish yellow.

To further augment the description, here is offered two photographs of the plant showing the root formation and the spine arrangement.

WHAT GROWS WHERE

Cacti Listed in Accordance With Their Geographical Origin
Compiled by Anne Smith, Santa Barbara, Calif.

T E X A S

SUBTRIBE CORYPHANTHANA

CORYPHANTHA (Continued)

- C. runyonii*
Type Locality: Not cited.
Distribution: Found along the Rio Grande from Brownsville to Rio Grande City.
- C. muehlenpfordtii*
Type Locality: Mexico.
Distribution: Northern Chihuahua, western Texas, and southern New Mexico.
- C. pectinata*
Type Locality: On the Pecos River in western Texas.
Distribution: Southern Texas and adjacent parts of Mexico.
- C. nickelsae*
Type Locality: Mexico, southward from Laredo, Texas.
Distribution: Northern Nuevo Leon, Mexico.
- C. echinus*
Type Locality: On the Pecos River, Texas.
Distribution: Western Texas.
- C. vivipara*
Type Locality: "Near the Mandan towns on the Missouri, lat. near 49 degrees."
Distribution: Manitoba to Alberta, Kansas, south to northern Texas and Colorado.
- C. neo-mexicana*
Type Locality: Western Texas to New Mexico, doubtless at El Paso.
Distribution: Western Texas, New Mexico, and northern Chihuahua.
- C. sulcata*
Type Locality: Industry, Texas.
Distribution: Southern Texas.

NEOBESSEYA

- N. wislmannii*
Type Locality: Not cited, presumably Texas.
Distribution: Central Texas.
- N. similis*
Type Locality: Near Industry, Texas.
Distribution: Eastern Texas.
- N. missouriensis*
Type Locality: On the high hills of the Missouri, probably to the mountains.
Distribution: North Dakota to Montana, Colorado to Kansas, Oklahoma and perhaps northern Texas.

ESCOBARIA

- E. tuberculosa*
Type Locality: Mountains near El Paso and eastward.
Distribution: Southwestern Texas, southern New Mexico, and adjacent Mexico.
- E. dasyacantha*
Type Locality: El Paso and eastward.
Distribution: Western Texas, southern New Mexico, and northern Chihuahua.
- E. runyonii*
Type Locality: Not cited.
Distribution: Collected at Reynosa, Mexico, and near Rio Grande, Starr County, Texas.
- E. sneedii*
Type Locality: Franklin Mountains, Texas.
Distribution: Southwestern Texas.
- E. bella*
Type Locality: Not cited.
Distribution: Collected on hills of Devil's River, Texas.

DOLICHOTHELE

- D. sphaerica*
Type Locality: Near Corpus Christi, Texas.
Distribution: Southern Texas and northern Mexico, especially along the Rio Grande from Eagle Pass to the sea.

NEOMAMMILLARIA

- N. beyderi*
Type Locality: Not cited.
Distribution: Texas and northern Mexico.
- N. hemisphaerica*
Type Locality: Below Matamoros on the Rio Grande.
Distribution: Southeastern Texas and northeastern Mexico.
- N. applanata*
Type Locality: Rocky plains on the Pterdenales, Texas.
Distribution: Central and southern Texas.
- N. meiacantha*
Type Locality: Western Texas and New Mexico.
Distribution: Texas, New Mexico, and northern Mexico.
- N. multiceps*
Type Locality: Not cited.
Distribution: Texas and northeastern Mexico.
- N. lasiacantha*
Type Locality: On the Pecos in western Texas.
Distribution: Western Texas and northern Chihuahua, Mexico. Reported also from Arizona, but doubtless incorrectly.
- N. denudata*
Type Locality: Western Texas.
Distribution: Western Texas and northern Coahuila, Mexico.
- N. pottsii*
Type Locality: Not cited.
Distribution: In the highlands of the Rio Grande, Texas; Nuevo Leon and Coahuila to Chihuahua, Mexico.
- N. microcarpa*
Type Locality: "On the Gila, 5,000 to 4,000 feet above the sea."
Distribution: Southwestern Texas and Chihuahua to Arizona and Sonora; recorded from southern California and southern Utah.

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